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| 09/812,073 | 03/20/2001 | Christpher Freitas | XANT117198 | 8990 |

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| EXAMINER |
|---|
| DEBERADINIS, ROBERT L |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2836 | |

DATE MAILED: 01/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/812,073 | Applicant(s) CHRISTPHER FREITAS |
|---|---|---|
| | Examiner Robert L. DeBeradinis | Art Unit 2836 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Mar 20, 2001* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-28* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 5, 7, 8, 10-12, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772.

Regarding claim 1.

FIORINA discloses an energy conversion apparatus comprising:

a heat conductive base ( column 3, lines 20,21);

a mount inside the space, for securing an energy conversion circuit to at least one of said cover and said base (column 3, lines 23-35).

FIORINA does not disclose a heat insulating cover operable to mate with the base so as to form a sealed space bounded by the cover and the base to prevent ingress of moisture.

PELL discloses electronics enclosure for power electronics whereby a moisture permeable membrane provides for controlled moisture exchange with the external environment ( column 8, lines 57-64).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a heat insulating cover operable to mate with the base so as to form a sealed space bounded by the cover and the base to prevent ingress of moisture to control the moisture level within a closed space when drawing air from the exterior space to cool the interior space.

Regarding claim 5.

The above references do not disclose a drain for draining liquid from inside space.

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a means for draining liquid from inside said space to prevent standing liquids due to excessive condensation.

Regarding claim 7.

PELL discloses an electronic enclosure to operate in an uncontrolled environment ( column 5, lines 40-54).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide an enclosure wherein one of said base and said cover has sealable openings through which electrical conductors may pass in order to connect the apparatus to external circuits and at the same time prevent external environmental conditions from influencing the operation of the device.

Regarding claim 8.

FIORINA discloses base-plates are mounted on heat sinks which are also connected to the printed circuit metallization ( column 3, lines 20-22).

Regarding claim 10.

FIORINA discloses wherein said base has a transformer mount, for mounting a transformer of said energy conversion device ( column 3, lines 30-35).

Regarding claim 11.

The above references do not disclose wherein said cover is formed from plastic.

PELL discloses a compact unit comprising one or more circuit boards in a conventional stacked mounting arrangement within an insulated chamber and relies on thermal conduction through ends of the circuit boards ( column 5, lines 15-17).

It would have been obvious to one having ordinary skill in the art at the time of this invention to use an insulating material such as plastic to form the insulated chamber and to seal the insulated chamber with a plastic cover to insulate the chamber from the external environment.

Regarding claim 12.

FIORINA in view of PELL disclose an energy conversion circuit mounted in an airspace inside said sealed space.

Regarding claim 16.

FIORINA in view of PELL disclose the apparatus as claimed in claim 1 having generally rectangular shape ( refer to PELL figures).

FIORINA in view of PELL do not disclose a generally rectangular parallelepiped shape.

It would have been obvious to one having ordinary skill in the art at the time of this invention to configure an energy conversion apparatus to fit into a required space.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772 and BOUTIN 4,987,919.

Regarding claim 6.

FIORINA in view of PELL do not disclose wherein said drain comprises an opening in said base and a resilient seal covering said opening, said resilient seal being movable in response to a pressure difference.

BOUTIN discloses pneumatically activated drain valve for reliable draining of condensation from a compressed air tank (abstract).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a means to allow fluid to pass through an opening in response to a pressure difference to drain condensation from an inclosed space.

4. Claims 2, 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772 and MIZOBE 6,309,448.

Regarding claims 2, 3.

FIORINA in view of PELL disclose the apparatus as claimed in claim 1 providing a means to dry humid air prior to entering inside space.

FIORINA in view of PELL do not discloses venting humid air from said space.

MIZOBE discloses vapor movement controlling device provides a directional property to movement of water vapor between two spaces (abstract).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a vent for venting humid air from said space to remove moisture from the inside space.

Regarding claim 4.

PELL discloses controlling moisture exchange with the external environment using a moisture permeable membrane ( column 8, lines 61).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a vent wherein the vent includes a moisture permeable membrane allowing moisture to pass from said space to an area outside the apparatus.

5. Claims 9, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772 in further view of YANG 6,456,507.

Regarding claim 9.

FIORINA in view of PELL disclose the apparatus as claimed in claim 1. FIORINA discloses wherein battery bank 20 is connected to cable connecting the battery to the inverter (column 2, lines 23, 24).

FIORINA in view of PELL do not disclose wherein said base has means for mounting said apparatus to a battery mount.

YANG discloses lower housing has a battery receptacle for accepting a battery ( column 2, lines 66-67).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide a means for mounting a battery to said base of said apparatus to provide easy access to the battery for maintenance.

Regarding claims 17, 18.

YANG discloses wherein said apparatus has a battery form factor enabling the apparatus to occupy a space occupiable by a battery ( see abstract and figures).

6. Claims 13, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772 in further view of OOTANI 6,353,309.

Regarding claim 13.

FIORINA in view of PELL disclose the apparatus as claimed in claim 1 wherein the temperature of the ambient air internal to the enclosure is controlled to maintain a temperature at 7 degrees C to 10 degrees C above the external ambient air ( PELL, column 8, lines 57-64).

FIORINA in view of PELL do not disclose wherein said energy conversion circuit includes a plurality of switching devices configured to reduce heat generation sufficient to permit said energy conversion circuit to operate while said apparatus is in an ambient temperature range between about -40 degrees centigrade to about 85 degrees centigrade.

OOTANI discloses switching devices connected in parallel to reduce power switching loss ( column 2, lines 1-68).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a plurality of switching devices configured to reduce heat generation sufficient to permit said energy conversion circuit to operate while said apparatus is in an ambient temperature range between about -40 degrees centigrade to about 85 degrees centigrade to prevent the energy conversion circuits from over heating.

Regarding claim 14.

OOTANI discloses wherein said plurality of switching devices comprise a plurality of transistors connected in parallel (see figure 1, transistors 11, 12).

It would have been obvious to one having ordinary skill in the art to connect the switching transistors in parallel to reduce the power dissipated by the transistors to reduce the operating temperature of the switching transistors.

Regarding claim 15.

FIORINA discloses wherein said energy conversion circuit further includes a transformer ( column 3, lines 31, 32).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a transformer configured to reduce heat generation sufficient to permit said energy conversion circuit to operate while said apparatus is in an ambient temperature range between about - 40 degrees centigrade to about +85 degrees centigrade.

7. Claims 19, 20, 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over FIORINA 4,764,684 in view of PELL 6,084,772 in further view of HAMMOND 4,487,300.

Regarding claims 19, 20.

FIORINA in view of PELL disclose the apparatus as claimed in claim 1.

FIORINA in view of PELL do not disclose a vibration damper for dampening vibrations of said circuit boards.

HAMMOND discloses vibration adjustable spacer used to damp vibration of circuit board (abstract).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a vibration damper for dampening vibrations of said circuit boards.

Regarding claim 21.

The above references include wherein said energy conversion circuit includes a plurality of circuit boards and wherein mount includes holders in said base and in said cover for holding said circuit boards of said energy conversion device in spaced apart relation.

Regarding claim 22.

FIORINA in view of PELL in further view of HAMMOND disclose the apparatus as claimed in claim 21 wherein said holders permit one circuit board to move relative to the other ( see HAMMOND, Figure 1) and sealing the enclosure to keep moisture out.

FIORINA in view of PELL in further view of HAMMOND do not disclose sealing between components on said circuit boards and said cover while permitting access to said components, from outside the cover.

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide sealing between components on said circuit boards and said cover while permitting access to said components, from outside the cover to access components that need frequent maintenance.

Regarding claims 23, 24, 25.

FIORINA in view of PELL in further view of HAMMOND disclose the apparatus as claimed in claim 12.

HAMMOND discloses a vibration damper for dampening vibrations of said circuit boards.

Regarding claims 26, 27, 28.

FIORINA in view of PELL in further view of HAMMOND disclose the apparatus as claimed in claim 12.

FIORINA discloses wherein said energy conversion circuit includes an inverter ( figure 1, 12, 16), a charger ( column 2, lines 22, 23) and comprises a combination charger and inverter.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (703) 306-5857. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached on (703) 308-3119. The fax phone number for this Group is (703) 308-7722.

RLD

DECEMBER 18, 2002